

APPENDIX B
CALTRANS COMMENTS AND RESPONSES

Memorandum

12-12-11 COMMENTS

*Flex your power!
Be energy efficient!*

To: MR. MATTHEW CUGINI,
D-12

Date: December 12, 2011

File: 12-ORA-405
PM 9.3/24.2
EA 120H100

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 1

Subject: District Preliminary Geotechnical Report (DPGR)

The Office of Geotechnical Design South 1 (OGDS1) has reviewed the subject submittal titled: “District Preliminary Geotechnical Report, I-405 Widening from SR-73 to I-605, 12-ORA-405-PM 9.3/24.2, EA0H1000, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010 (revised August 25, November 4 and December 8, 2011) and received by our office on December 9, 2011. During our review we made reference to the following:

1. “Preliminary Geotechnical Report for Project Report/Environmental Document, I-405 Widening from SR-73 to I-605, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010.
2. OGDS1 Review Comment Memorandum dated February 17, 2011.
3. Response to item No.2 above listed in the “Review Comment Disposition Form”, undated, submitted as part of the subject submittal.
4. “District Preliminary Geotechnical Report, I-405 Widening from SR-73 to I-605, 12-ORA-405-PM 9.3/24.2, EA 0H1000, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010, (Revised August 25, 2011)
5. OGDS1 Review Comment Memorandum dated September 21, 2011.
6. Over the shoulder review meeting conducted on December 9, 2011.

We have the following comment:

- Take out “section deleted” from the subject report and revise the report accordingly as was discussed during the December 9, 2011 meeting.

Any questions, please call me at (949) 724-2599.

SHARID K. AMIRI, Ph.D., P.E.
Senior Transportation Engineer
Office of Geotechnical Design South-1



RESPONSE TO 12-12-11 COMMENTS

I-405 WIDENING PA/ED Review Comment Disposition Form

SUBMITTAL No. :		PROJECT : I-405 Improvement Project PA/ED
SUBMITTAL: <input type="checkbox"/> Screencheck <input type="checkbox"/> Draft <input type="checkbox"/> Final <input checked="" type="checkbox"/> _____		SUBMITTAL NAME: District Preliminary Geotechnical Report
REVIEW AGENCY: <input type="checkbox"/> OCTA <input checked="" type="checkbox"/> Caltrans <input type="checkbox"/> FHWA <input type="checkbox"/> _____		SUBMITTAL DATE: 12-08-11
REVIEW BY: Sharid K. Amiri, Ph.D., P.E.	REVIEW DATE: 12-12-11	CONTACT: Parsons/Jason Majzoub 949.333.4513

No.	Dwg./Pg.	Comment	Initial Disp.	Response	Final Disp.	LS or RI	Veri-fier	Verify Date
1	General	Take out "section deleted" from the subject report and revise the report accordingly as was discussed during the December 9, 2011 meeting.	C	GDC has made the requested changes as discussed in our meeting on December 9, 2011.				

I certify that all comments on this form have been addressed and incorporated in the resubmitted document.

Curt Scheyhing

12-14-11

Project Manager / Task Manager / Document Originator

Date

INITIAL DISPOSITION CODES BY ORIGINATOR: C = Will Comply D = Discuss N = No Change A = Agency Action

FINAL DISPOSITION CODES BY REVIEWER: D = Done or Approved N/C = No Change Required LS =Revise in Later Submittal RI = Revise Immediately

11-18-11 COMMENTS

Memorandum

*Flex your power!
Be energy efficient!*

To: MR. MATTHEW CUGINI,
D-12

Date: November 18, 2011

File: 12-ORA-405
PM 9.3/24.2
EA 120H100

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 1

Subject: District Preliminary Geotechnical Report (DPGR)

The Office of Geotechnical Design South 1 (OGDS1) has reviewed the subject submittal titled: “District Preliminary Geotechnical Report, I-405 Widening from SR-73 to I-605, 12-ORA-405-PM 9.3/24.2, EA0H1000, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010 (revised August 25 and November 4, 2011) and received by our office on November 9, 2011. During our review we made reference to the following:

1. “Preliminary Geotechnical Report for Project Report/Environmental Document, I-405 Widening from SR-73 to I-605, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010.
2. OGDS1 Review Comment Memorandum dated February 17, 2011.
3. Response to item No.2 above listed in the “Review Comment Disposition Form”, undated, submitted as part of the subject submittal.
4. “District Preliminary Geotechnical Report, I-405 Widening from SR-73 to I-605, 12-ORA-405-PM 9.3/24.2, EA 0H1000, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010, (Revised August 25, 2011)
5. OGDS1 Review Comment Memorandum dated September 21, 2011.

Our office has the following comments:

1. Provide a clear and complete description of the proposed improvements in the text of the report for all 3 proposed alternatives; revise Section 2 of the subject report accordingly. In doing so make it consistent with the project report.(PR)
2. Was the groundwater depth based only on the previous exploration performed for the structures? If so, explain why the data for groundwater based on the past roadway/Retaining Walls explorations is not included.
3. Take out section 4.2
4. Include Layout sheets for Alternatives 1 and 2 in the Appendix.

5. Take out all LOTB related to the bridge structures from the report. Include all available As-Built LOTB referring to the roadway items (i.e. main line, ramps, sound walls and standard retaining walls)
6. Revise the Table of Contents to reflect the revisions.
7. Reference for Caltrans existing reports is incomplete and does not have any date or the actual title as reflected on the reports. Revise accordingly.
8. Take out Table 2A and any reference to it in the text.
9. Revise Table 3 to include groundwater for District items such as Roadway and Walls. State if groundwater was not encountered during the past geotechnical investigations for District items in a footnote.
10. Revise Section 4.1.4 to reflect only district items. Take out reference to bridges.
11. What is the potential for expansion and its impact on the roadway, based on the literature search conducted during the preparation of the subject report? Explain and include it in the subject report where it applies.

Any questions, please call me at (949) 724-2599.

SHARID K. AMIRI, Ph.D., P.E.
Senior Transportation Engineer
Office of Geotechnical Design South-1



RESPONSE to 11-18-11 COMMENTS

I-405 WIDENING PA/ED Review Comment Disposition Form

SUBMITTAL No. :	PROJECT : I-405 Improvement Project PA/ED
SUBMITTAL: <input type="checkbox"/> Screencheck <input type="checkbox"/> Draft <input type="checkbox"/> Final <input checked="" type="checkbox"/> _____	SUBMITTAL NAME: District Preliminary Geotechnical Report
REVIEW AGENCY: <input type="checkbox"/> OCTA <input checked="" type="checkbox"/> Caltrans <input type="checkbox"/> FHWA <input type="checkbox"/> _____	SUBMITTAL DATE: 11-04-11
REVIEW BY: Sharid K. Amiri, Ph.D., P.E.	REVIEW DATE: 11-18-11
CONTACT: Parsons/Jason Majzoub 949.333.4513	

No.	Dwg./Pg.	Comment	Initial Disp.	Response	Final Disp.	LS or RI	Veri-fier	Verify Date
1	Section 2	Provide a clear and complete description of the proposed improvements in the text of the report for all 3 proposed alternatives; revise Section 2 of the subject report accordingly. In doing so make it consistent with the project report.(PR)	C	Section 1.1 has been revised and includes a clear and complete description of all 3 alternatives for the proposed improvements consistent with the PR. Section 2.2 has been revised accordingly.				
2	Table 3	Was the groundwater depth based only on the previous exploration performed for the structures? If so, explain why the data for groundwater based on the past roadway/Retaining Walls explorations is not included.	C	GDC has obtained LOTB for roadway and retaining walls from Caltrans and summarized the available groundwater data from these LOTB in Table 3 of the revised report.				
3	Section 4.2	Take out Section 4.2.	C	Section 4.2 has been taken out.				
4	Appendices	Include Layout sheets for Alternatives 1 and 2 in the Appendix.	C	Layout sheets for Alternatives 1 and 2 are provided in Appendix D.				
5	Appendix A	Take out all LOTB related to the bridge structures from the report. Include all available As-Built LOTB referring to the roadway items (i.e. main line, ramps, sound walls and standard retaining walls)	C	All bridge LOTB have been taken out of Appendix A, and replaced with all available LOTB for mainline, ramps, soundwalls, and standard retaining walls.				
6	TOC	Revise the Table of Contents to reflect the revisions.	C	TOC has been revised to reflect the changes.				
7	References	Reference for Caltrans existing reports is incomplete and does not have any date or the actual title as reflected on the reports. Revise accordingly.	C	A complete list of detailed references is provided in the revised report.				

INITIAL DISPOSITION CODES BY ORIGINATOR: C = Will Comply D = Discuss N = No Change A = Agency Action

FINAL DISPOSITION CODES BY REVIEWER: D = Done or Approved N/C = No Change Required LS =Revise in Later Submittal RI = Revise Immediately

No.	Dwg./Pg.	Comment	Initial Disp.	Response	Final Disp.	LS or RI	Veri-fier	Verify Date
8	Table 2A	Take out Table 2A and any reference to it in the text.	C	Table 2A and all references have been taken out.				
9	Table 3	Revise Table 3 to include groundwater for District items such as Roadway and Walls. State if groundwater was not encountered during the past geotechnical investigations for District items in a footnote.	C	Groundwater data for District LOTB have been added to Table 3 and a footnote has been added regarding those LOTB where groundwater was not encountered or measured.				
10	Section 4.1.4	Revise Section 4.1.4 to reflect only district items. Take out reference to bridges.	C	Section 4.1.4 (liquefaction) has been revised accordingly.				
11		What is the potential for expansion and its impact on the roadway, based on the literature search conducted during the preparation of the subject report? Explain and include it in the subject report where it applies.	C	No laboratory data for expansive soils or evidence of roadway problems due to expansive soils was discovered in the literature reviewed. In section 2.2.5 we have added a sentence indicating that roadway over-excavation will be required below pavements where expansive soils are present. We have also added a statement in Section 4.10 "The roadway and pavement investigations should address the potential impacts of expansive soils on the roadway, and recommend appropriate remediation measures, as necessary."				

I certify that all comments on this form have been addressed and incorporated in the resubmitted document.

Curt Scheyhing

12-08-11

Project Manager / Task Manager / Document Originator

Date

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New comments and responses

Memorandum

*Flex your power!
Be energy efficient!*

To: MR. MATTHEW CUGINI,
D-12

Date: September 21, 2011

File: 12-ORA-405
PM 9.3/24.2
EA 120H100

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 1

Subject: District Preliminary Geotechnical Report (DPGR)

The Office of Geotechnical Design South 1 (OGDS1) has reviewed the subject submittal titled: “District Preliminary Geotechnical Report, I-405 Widening from SR-73 to I-605, 12-ORA-405-PM 9.3/24.2, EA0H1000, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010, revised August 25, 2011 and received by our office on September 1, 2011. During our review we made reference to the following:

1. “Preliminary Geotechnical Report for Project Report/Environmental Document, I-405 Widening from SR-73 to I-605, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010.
2. OGDS1 Review Comment Memorandum dated February 17, 2011.
3. Response to item No.2 above listed in the “Review Comment Disposition Form”, undated, submitted as part of the subject submittal.

We have the following comments:

1. The scope of the subject report must include district items only. Revise the entire report to reflect it, per Caltrans guidelines. All bridge items have been removed as per reviewer's original comments.
2. Are there any data available per previous geotechnical investigations and reports for the district items? Explain and include a text in the report, where appropriate. We obtained and reviewed existing soundwall and retaining wall reports along the alignment. The reports reviewed are referenced in Section

Any questions, please call me at (949) 724-2599. Section 3.2.2 of the report.

SHARID K. AMIRI, Ph.D., P.E.
Senior Transportation Engineer
Office of Geotechnical Design South-1

Memorandum

*Flex your power!
Be energy efficient!*

To: MR. FRED FAIZI
D-12

Date: February 17, 2011

Original Comments

File: 12-ORA-405
PM ?

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 1

Subject: District Preliminary Geotechnical Report (DPGR)

The Office of Geotechnical Design South 1 (OGDS1) has reviewed the subject submittal titled: “Preliminary Geotechnical Report for Project Report/Environmental Document, I-405 Widening from SR-73 to I-605, Orange County, California,” prepared by Group Delta Consultants, Inc., dated December 17, 2010 and received by our office on December 24, 2010. We have the following comments:

- Replace “Preliminary Geotechnical Report for Project Report/Environmental Document” by “District Preliminary Geotechnical Report (DPGR)” in the subject submittal.
- Include PM for both the beginning and end of the project.
- Include the EA of the project.
- Take out Section 1.3
- Take out section 3.2.2
- Subsurface conditions for the geo-structures (i.e. embankment fill, slopes, cut sections, etc...) must be based on site specific explorations based on the LRFD guidelines. Explain why your report does not follow the latter guidelines.
- Any structures included in the GDR such as sign structures must have site specific explorations.
- If tiebacks are type selected and a type selection meeting is scheduled, preliminary foundation reports must be prepared and submitted to Caltrans for review. Revise section 4.3.4 accordingly.
- Include the compaction test method in Section 4.5.4
- Take out section 4.10
- Include a section in the report for future scope of work. The section should elaborate on the scope of geotechnical investigation and laboratory testing, based on the LRFD guidelines.

Any questions, please call me at (949) 724-2599.

SHARID K. AMIRI, Ph.D., P.E.
Senior Transportation Engineer
Office of Geotechnical Design South-1



Original Response

I-405 WIDENING PA/ED

Review Comment Disposition Form

SUBMITTAL No. :		PROJECT : I-405 Improvement Project PA/ED
SUBMITTAL: <input type="checkbox"/> Screencheck <input checked="" type="checkbox"/> Draft <input type="checkbox"/> Final <input type="checkbox"/> _____		SUBMITTAL NAME: District Preliminary Geotechnical Report (DPGR)
REVIEW AGENCY: <input type="checkbox"/> OCTA <input checked="" type="checkbox"/> Caltrans <input type="checkbox"/> FHWA <input type="checkbox"/> _____		SUBMITTAL DATE: December 27, 2010
REVIEW BY: Sharid K. Amiri, Ph.D., PE	REVIEW DATE: 2-17-11	CONTACT: Parsons/ Jason Majzoub

No.	Dwg./ Pg.	Comment	Initial Disp.	Response	Final Disp.	LS or RI	Veri-fier	Verify Date
1	3	Replace "Preliminary Geotechnical Report for Project Report/Environmental Document" by "District Preliminary Geotechnical Report (DPGR)" in the subject submittal.	C	The replacement has been made in the revised report.				
2		Include PM for both the beginning and end of the project	C	This is included in the revised report.				
3		Include the EA of the project.	C	This is included in the revised report.				
4		Take out Section 1.3	N	Section 1.3 "Key Geotechnical Issues" is a summary of the most critical issues from a geotechnical viewpoint, therefore this section is relevant and should remain.				
5		Take out section 3.2.2	N	The scope of the DPGR was a paper review based on existing data following Section 150.15.20 of Caltrans Work Breakdown Structure (WBS). The subsurface data from as-built LOTB presented in this section are the only available subsurface data and therefore are an essential part of this report and this section should remain.				

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No.	Dwg./Pg.	Comment	Initial Disp.	Response	Final Disp.	LS or RI	Veri-fier	Verify Date
6		Subsurface conditions for the geo-structures (i.e. embankment fill, slopes, cut sections, etc...) must be based on site specific explorations based on the LRFD guidelines. Explain why your report does not follow the latter guidelines.	C	We agree that adequate subsurface investigation is required at the PS+E stage in full conformance with LRFD and other Caltrans Guidelines. The DPGR was prepared following Section 150.15.20 of Caltrans Work Breakdown Structure (WBS) using only available existing information and the scope did not include subsurface exploration, which is normal practice at the PA/ED level. Scope of site specific exploration for final design should be finalized by the geotechnical engineer of record in the PS+E stage when more detailed plans are available. Preliminary guidelines for the scope of additional investigations are presented in Section 4.11.				
7		Any structures included in the GDR such as sign structures must have site specific explorations.	C	Agreed. This is included in Section 4.11.				
8		If tiebacks are type selected and a type selection meeting is scheduled, preliminary foundation reports must be prepared and submitted to Caltrans for review. Revise section 4.3.4 accordingly.	C	Agreed. An SPGR for tieback walls was prepared for this project as part of Advanced Planning Studies (APS) following Section 150.15.30 of Caltrans WBS. A PFR will be required prior to Type Selection Meeting in accordance with Section 240.65 of WBS in the early stages of PS+E, and we have added this statement to Section 4.3.4.				
9		Include the compaction test method in Section 4.5.4	C	We have referenced Caltrans Test Method 216 in this section of the revised DPGR.				
10		Take out section 4.10	C	We have moved this section as well as former Tables 5A, 5B, and 6 out of the main report and into Appendix B for use by Parsons. It is understood that Caltrans Geotechnical Design South is not reviewing this section.				

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No.	Dwg./Pg.	Comment	Initial Disp.	Response	Final Disp.	LS or RI	Veri-fier	Verify Date
11		Include a section in the report for future scope of work. The section should elaborate on the scope of geotechnical investigation and laboratory testing, based on the LRFD Guidelines.	C	Preliminary guidelines and LRFD references are provided in Section 4.11. The geotechnical engineer responsible for the PS+E studies should prepare the final detailed exploration plan based on updated project plans and the Caltrans guidelines in effect at that time.				

I certify that all comments on this form have been addressed and incorporated in the resubmitted document.

Curt Scheyhing

Project Manager / Task Manager / Document Originator

08-19-11

Date

INITIAL DISPOSITION CODES BY ORIGINATOR: C = Will Comply D = Discuss N = No Change A = Agency Action

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APPENDIX C
LAYOUT PLANS FOR ALTERNATIVES 1 AND 2

**ALTERNATIVE 1
LAYOUT SHEETS**

12-Ora-22 PM R0.5/R0.7
12-Ora-22 PM R0.7/R3.8
12-Ora-73 PM R27.2/R27.8
12-Ora-405 PM 9.3/24.2
07-LA-405 PM 0.0/1.2
12-Ora-605 PM 3.5/R1.6
07-LA-605 PM R0.0/R1.2
I-405 Improvement Project
PN 12000001800/Unit 2994
Program Code: 20.10.400.100
November 2011

Draft Project Report

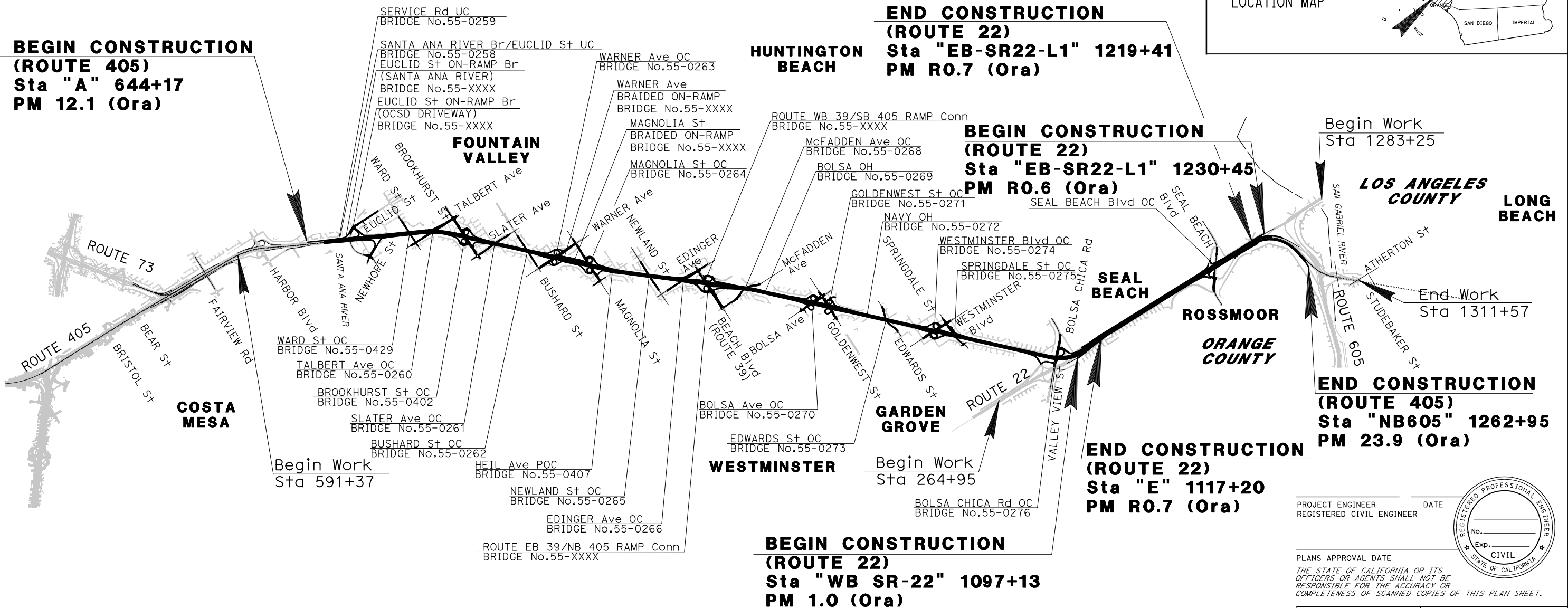
I-405 Improvement Project



ATTACHMENT D

Alternative 1 Drawings

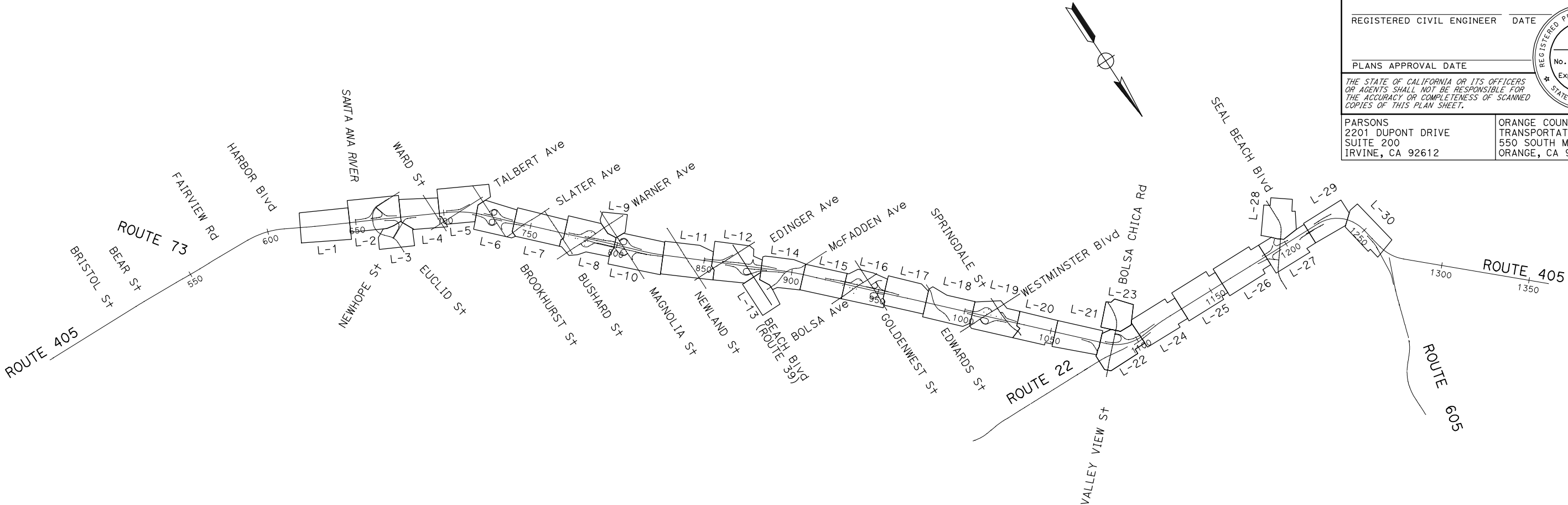
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY
IN LOS ANGELES AND ORANGE COUNTIES
IN COSTA MESA, FOUNTAIN VALLEY, WESTMINSTER,
HUNTINGTON BEACH, GARDEN GROVE, SEAL BEACH, ROSSMOOR, AND LONG BEACH
ON ROUTE 22 FROM ROUTE 405 TO 0.3 MILE
WEST OF VALLEY VIEW STREET OVERCROSSING
ON ROUTE 22 FROM 0.3 MILE WEST OF ROUTE 605 TO ROUTE 405
ON ROUTE 405 FROM 0.5 MILE SOUTH OF EUCLID STREET UNDERCROSSING
TO 0.2 MILE SOUTH OF 405/605 SEPERATION
TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2006



PROJECT REPORT PLANS FOR ALTERNATIVE 1
NO SCALE

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES)
OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

PROJECT ENGINEER REGISTERED CIVIL ENGINEER		DATE
PLANS APPROVAL DATE		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.		
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863	
CONTRACT No.	12-OH1000	
PROJECT ID	12000001800	



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE			No. _____ Exp. _____ CIVIL STATE OF CALIFORNIA		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

LINE INDEX

"A" LINE
"EC" LINE
"ECL-1" LINE
"ECL-2" LINE
"ECL-3" LINE
"ECR-1" LINE
"ECR-2" LINE
"W" LINE
"T" LINE
"TL-1" LINE
"BH" LINE
"BHL-1" LINE
"BHL-2" LINE
"BHR-1" LINE
"BHR-2" LINE
"BHR-3" LINE
"S" LINE
"BD" LINE
"WN" LINE
"WNL-1" LINE
"WNL-2" LINE
"WNR-1" LINE
"WNR-2" LINE
"M" LINE
"ML-1" LINE
"ML-2" LINE

DESCRIPTION

ROUTE 405 CENTERLINE
EUCLID STREET/ELLIS AVENUE CENTERLINE
EUCLID STREET SB ON-RAMP
EUCLID STREET SB LOOP ON-RAMP
EUCLID STREET SB OFF-RAMP
EUCLID STREET NB OFF-RAMP
EUCLID STREET NB ON-RAMP
WARD STREET CENTERLINE
TALBERT AVENUE CENTERLINE
TALBERT AVENUE SB ON-RAMP
BROOKHURST STREET CENTERLINE
BROOKHURST STREET SB LOOP ON-RAMP
BROOKHURST STREET SB OFF-RAMP
BROOKHURST STREET NB OFF-RAMP
BROOKHURST STREET NB LOOP ON-RAMP
BROOKHURST STREET NB ON-RAMP
SLATER AVENUE CENTERLINE
BUSHARD STREET CENTERLINE
WARNER AVENUE CENTERLINE
WARNER AVENUE SB ON-RAMP
WARNER AVENUE SB LOOP OFF-RAMP
WARNER AVENUE NB LOOP OFF-RAMP
WARNER AVENUE NB ON-RAMP
MAGNOLIA STREET CENTERLINE
MAGNOLIA STREET SB LOOP ON-RAMP
MAGNOLIA STREET SB OFF-RAMP

LINE INDEX

"MR-1" LINE
"MR-2" LINE
"MR-3" LINE
"NL" LINE
"ED" LINE
"EDL-1" LINE
"B" LINE
"BL-1" LINE
"BL-2" LINE
"BR-1" LINE
"BR-2" LINE
"BR-3" LINE
"MF" LINE
"BGL-1" LINE
"BS" LINE
"BSL-1" LINE
"BSL-2" LINE
"BSR-1" LINE
"GW" LINE
"E" LINE
"GWL-1" LINE
"GWL-2" LINE
"GWR-1" LINE
"EW" LINE
"WM" LINE
"WML-1" LINE

DESCRIPTION

MAGNOLIA STREET NB OFF-RAMP
MAGNOLIA STREET NB LOOP ON-RAMP
MAGNOLIA STREET NB ON-RAMP
NEWLAND STREET CENTERLINE
EDINGER AVENUE CENTERLINE
EDINGER AVENUE SB ON-RAMP
BEACH BOULEVARD (ROUTE 39) CENTERLINE
BEACH BOULEVARD/CENTER AVENUE SB HOOK ON-RAMP
BEACH BOULEVARD/CENTER AVENUE SB HOOK OFF-RAMP
BEACH BOULEVARD NB OFF-RAMP
BEACH BOULEVARD NB LOOP ON-RAMP
BEACH BOULEVARD NB ON-RAMP
McFADDEN AVENUE CENTERLINE
BOLSA AVENUE/GOLDENWEST STREET SB C-D ROAD
BOLSA AVENUE CENTERLINE
BOLSA AVENUE SB ON-RAMP
BOLSA AVENUE SB LOOP OFF-RAMP
BOLSA AVENUE NB LOOP OFF-RAMP
GOLDENWEST STREET CENTERLINE
WESTMINSTER MALL CENTERLINE
GOLDENWEST STREET/WESTMINSTER MALL SB LOOP ON-RAMP
GOLDENWEST STREET/WESTMINSTER MALL SB OFF-RAMP
GOLDENWEST STREET NB LOOP ON-RAMP
EDWARDS STREET CENTERLINE
WESTMINSTER BOULEVARD CENTERLINE
WESTMINSTER BOULEVARD SB ON-RAMP

LINE INDEX

"WML-2" LINE
"WMR-1" LINE
"WMR-2" LINE
"SD" LINE
"SDL-1" LINE
"BC" LINE
"BCL-1" LINE
"BCL-2" LINE
"BCR-1" LINE
"SR22" LINE
"H" LINE
"E1" LINE
"W1" LINE
"WB SR-22" LINE
"EB SR-22" LINE
"SB" LINE
"SBL-1" LINE
"SBL-2" LINE
"SBR-1" LINE
"SBR-2" LINE
"WB SR-22 R1" LINE
"WB SR-22 R2" LINE
"EB SR-22 L1" LINE
"NB 605" LINE
"I605" LINE

DESCRIPTION

WESTMINSTER BOULEVARD SB LOOP OFF-RAMP
WESTMINSTER BOULEVARD NB LOOP OFF-RAMP
WESTMINSTER BOULEVARD NB ON-RAMP
SPRINGDALE STREET CENTERLINE
SPRINGDALE STREET SB OFF-RAMP
BOLSA CHICA ROAD/VALLEY VIEW STREET CENTERLINE
BOLSA CHICA ROAD SB LOOP ON-RAMP
BOLSA CHICA ROAD SB OFF-RAMP
GARDEN GROVE BOULEVARD NB OFF-RAMP
EXIST ROUTE 22 CENTERLINE
405-22 HOV CONNECTOR CENTERLINE
S405-E22 CONNECTOR STATIONLINE (WEST OF VALLEY VIEW STREET)
W22-N405 CONNECTOR STATIONLINE (EAST OF VALLEY VIEW STREET)
W22-N405 CONNECTOR STATIONLINE (WEST OF VALLEY VIEW STREET)
S405-E22 CONNECTOR STATIONLINE (EAST OF VALLEY VIEW STREET)
SEAL BEACH BOULEVARD CENTERLINE
SEAL BEACH BOULEVARD SB ON-RAMP
SEAL BEACH BOULEVARD SB LOOP OFF-RAMP
SEAL BEACH BOULEVARD NB OFF-RAMP
SEAL BEACH BOULEVARD NB LOOP ON-RAMP
OLD RANCH PARKWAY NB ON-RAMP
N405-W22 CONNECTOR CENTERLINE
E22-S405 CONNECTOR CENTERLINE
N405-N605 CONNECTOR CENTERLINE
ROUTE 605 CENTERLINE

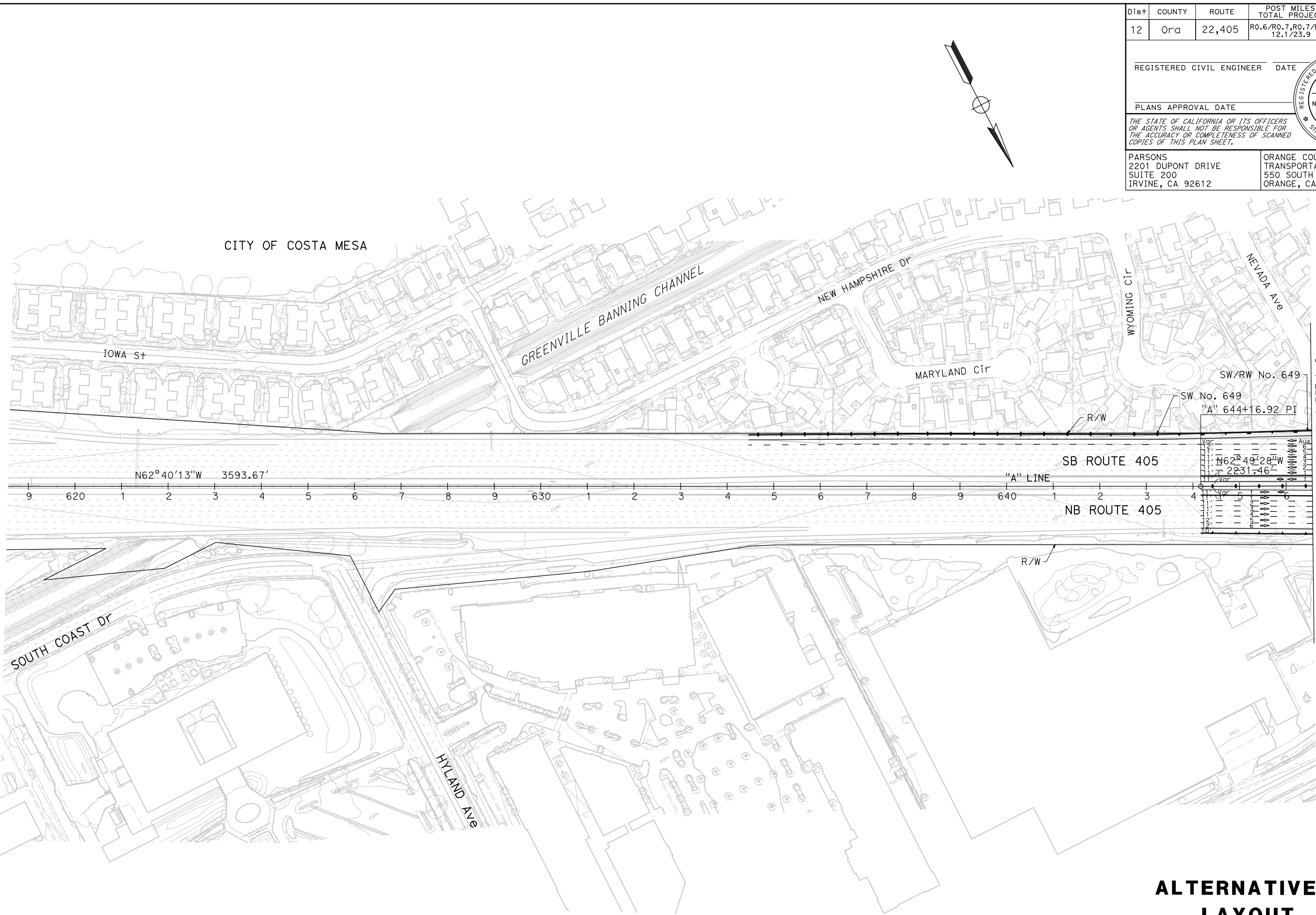
ALTERNATIVE 1
KEY MAP

NO SCALE

K-1



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISOR	DATE
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CHECKED BY	REVISOR	DATE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

REGISTERED PROFESSIONAL ENGINEER

No. _____

Exp. _____

CIVIL

STATE OF CALIFORNIA

ALTERNATIVE 1
LAYOUT

SCALE 1"=100' L-1



Dist

12

COUNTY

Oran

ROUTE

22,405

POST MILES TOTAL PROJECT

R0.6/R0.7,R0.7/R1.0
12.1/23.9

SHEET No.

TOTAL SHEETS

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

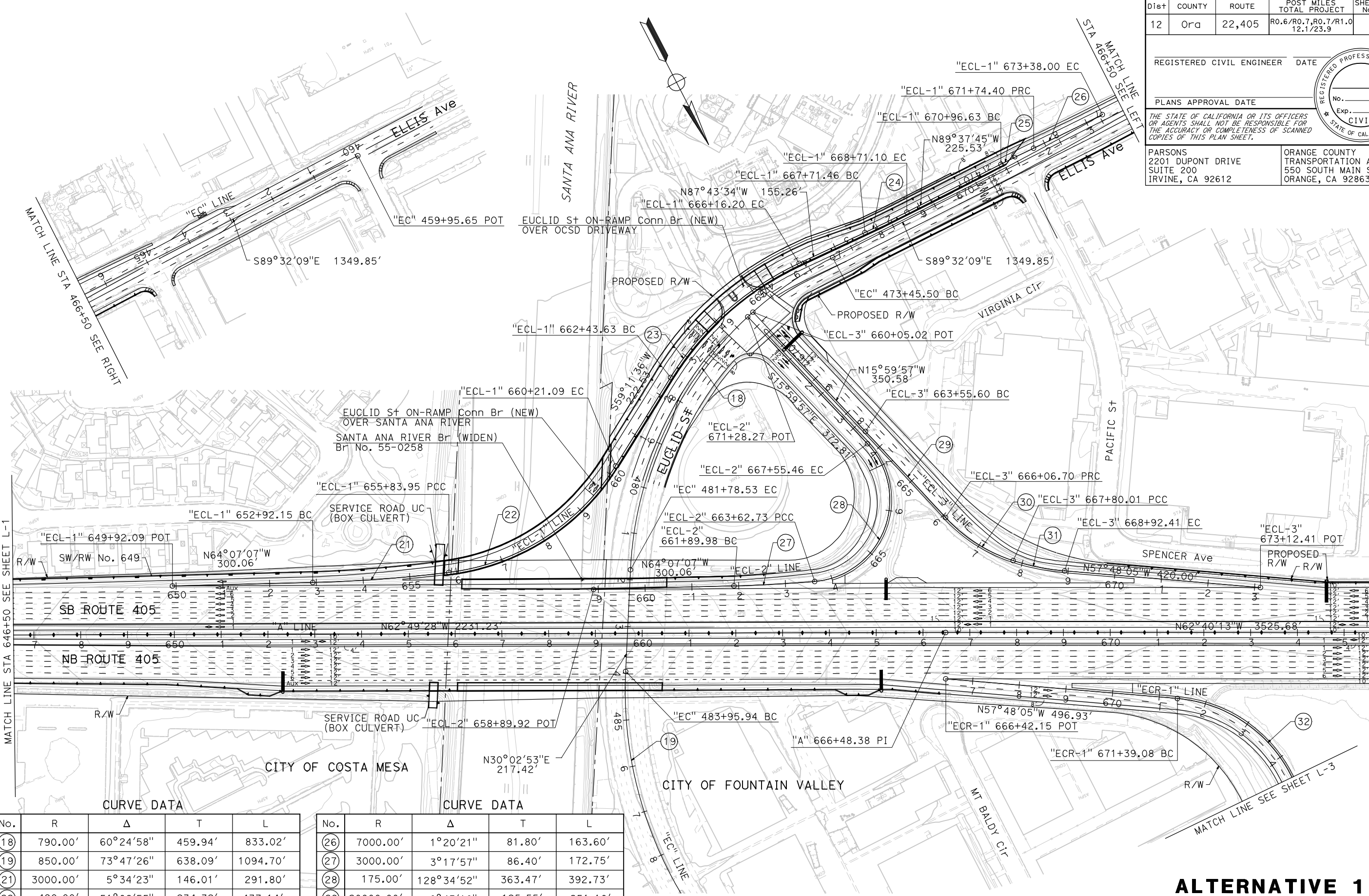
REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA



CURVE DATA

No.	R	Δ	T	L
(18)	790.00'	60°24'58"	459.94'	833.02'
(19)	850.00'	73°47'26"	638.09'	1094.70'
(21)	3000.00'	5°34'23"	146.01'	291.80'
(22)	490.00'	51°06'55"	234.32'	437.14'
(23)	645.30'	33°04'50"	191.64'	372.57'
(24)	3000.00'	1°54'11"	49.83'	99.64'
(25)	2791.17'	1°35'47"	38.89'	77.77'

CURVE DATA

No.	R	Δ	T	L
(26)	7000.00'	1°20'21"	81.80'	163.60'
(27)	3000.00'	3°17'57"	86.40'	172.75'
(28)	175.00'	128°34'52"	363.47'	392.73'
(29)	20000.00'	0°43'10"	125.55'	251.10'
(30)	335.00'	29°38'29"	88.64'	173.31'
(31)	500.00'	12°52'49"	56.44'	112.40'
(32)	300.00'	102°24'12"	373.15'	536.18'

ALTERNATIVE 1

LAYOUT

SCALE 1"=100'

L-2

x

Subaru®

CURVE DATA

SCALE 1"=100'


L-3



UNIT 2994

PROJECT NUMBER & PHASE

12000001800

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		
<div style="display: flex; justify-content: space-between;"> <div> REGISTERED CIVIL ENGINEER _____ DATE _____ PLANS APPROVAL DATE _____ </div> <div style="text-align: center;">  </div> </div> <p><i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</i></p>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED-DESIGNED BY	REVISED BY		
Caltrans®		CHECKED BY	DATE REVISED		

CURVE DATA				
No.	R	Δ	T	L
(34)	300.00'	48°53'44"	136.39'	256.02'
(35)	3000.00'	3°23'44"	88.92'	177.79'

ALTERNATIVE 1 LAYOUT

SCALE 1"=100'

L-4

BORDER LAST REVISED 7/2/2010

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RELATIVE BORDER SCALE
IS IN INCHES

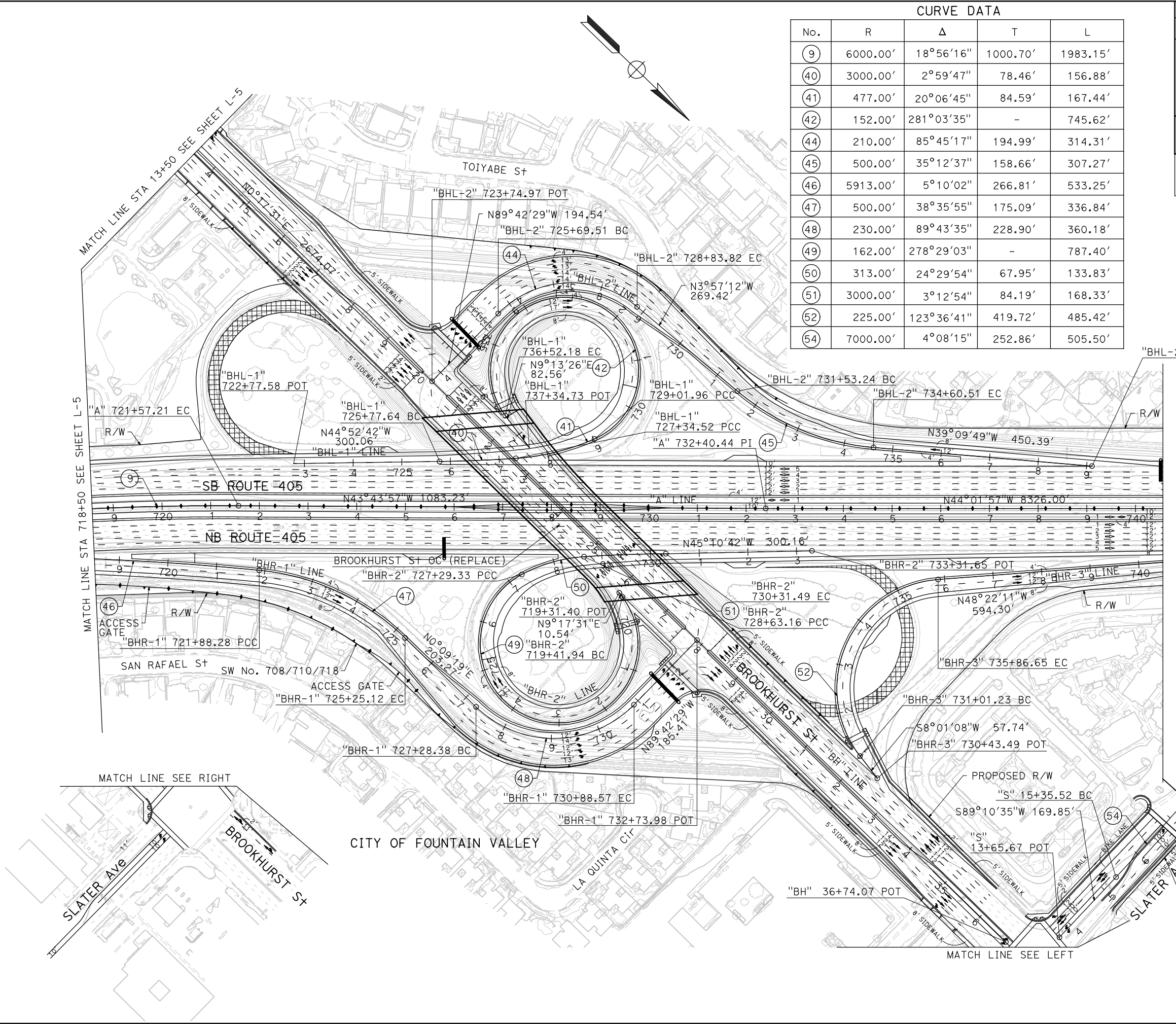


UNIT 2994

PROJECT NUMBER & PHASE

12000001800

DATE PLOTTED => 11/14/2011	LAST REVISION
TIME PLOTTED => 10:55:42 AM	00-00-00



CURVE DATA				
No.	R	Δ	T	L
9	6000.00'	18°56'16"	1000.70'	1983.15'
40	3000.00'	2°59'47"	78.46'	156.88'
41	477.00'	20°06'45"	84.59'	167.44'
42	152.00'	281°03'35"	-	745.62'
44	210.00'	85°45'17"	194.99'	314.31'
45	500.00'	35°12'37"	158.66'	307.27'
46	5913.00'	5°10'02"	266.81'	533.25'
47	500.00'	38°35'55"	175.09'	336.84'
48	230.00'	89°43'35"	228.90'	360.18'
49	162.00'	278°29'03"	-	787.40'
50	313.00'	24°29'54"	67.95'	133.83'
51	3000.00'	3°12'54"	84.19'	168.33'
52	225.00'	123°36'41"	419.72'	485.42'
54	7000.00'	4°08'15"	252.86'	505.50'

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12

Oran

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

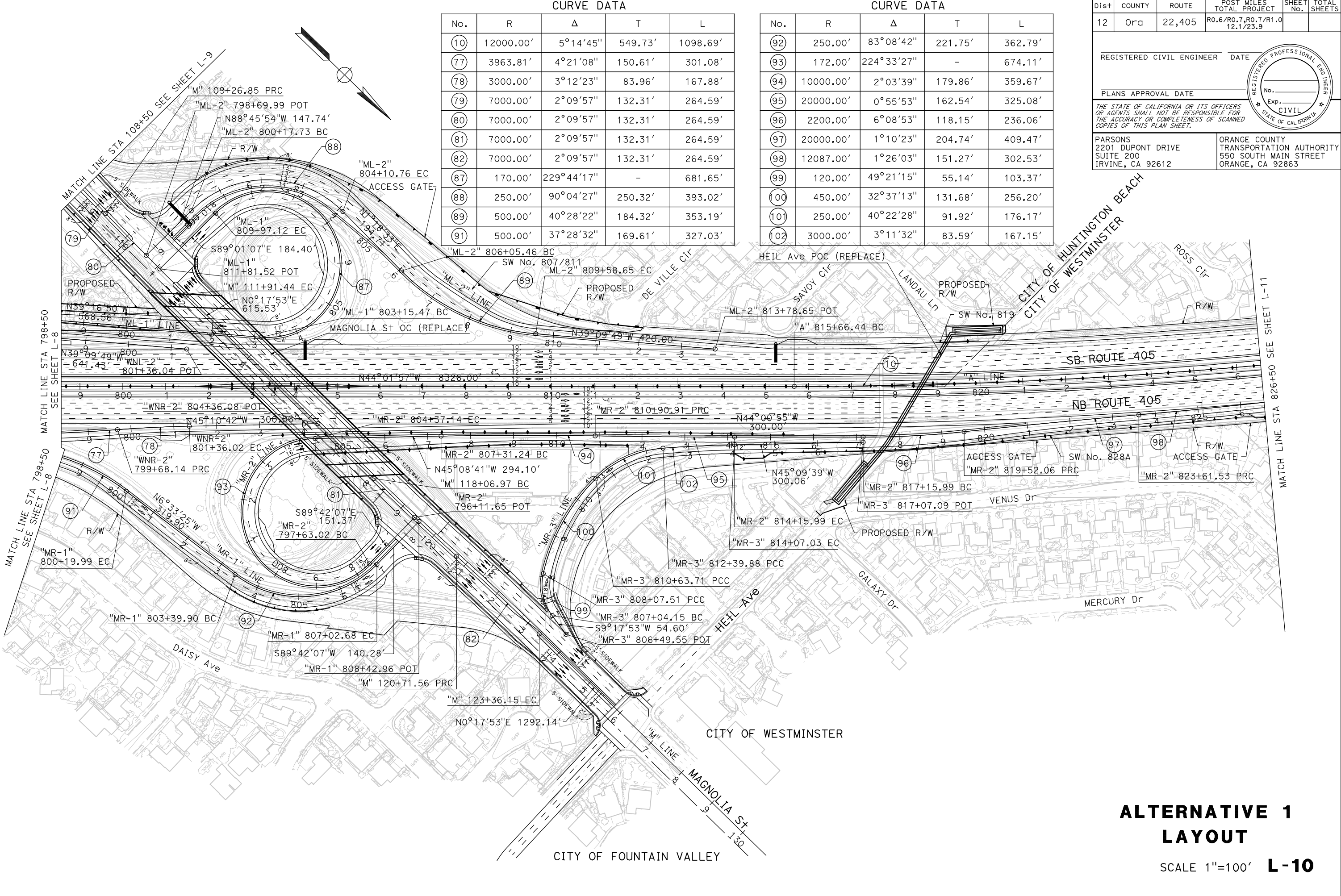
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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

LAST REVISION DATE PLOTTED => 11/14/2011
00-00-00 TIME PLOTTED => 10:55:55 AM

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		



CURVE DATA				
No.	R	Δ	T	L
10	12000.00'	5°14'45"	549.73'	1098.69'
77	3963.81'	4°21'08"	150.61'	301.08'
78	3000.00'	3°12'23"	83.96'	167.88'
79	7000.00'	2°09'57"	132.31'	264.59'
80	7000.00'	2°09'57"	132.31'	264.59'
81	7000.00'	2°09'57"	132.31'	264.59'
82	7000.00'	2°09'57"	132.31'	264.59'
87	170.00'	229°44'17"	-	681.65'
88	250.00'	90°04'27"	250.32'	393.02'
89	500.00'	40°28'22"	184.32'	353.19'
91	500.00'	37°28'32"	169.61'	327.03'

CURVE DATA				
No.	R	Δ	T	L
92	250.00'	83°08'42"	221.75'	362.79'
93	172.00'	224°33'27"	-	674.11'
94	10000.00'	2°03'39"	179.86'	359.67'
95	20000.00'	0°55'53"	162.54'	325.08'
96	2200.00'	6°08'53"	118.15'	236.06'
97	20000.00'	1°10'23"	204.74'	409.47'
98	12087.00'	1°26'03"	151.27'	302.53'
99	120.00'	49°21'15"	55.14'	103.37'
100	450.00'	32°37'13"	131.68'	256.20'
101	250.00'	40°22'28"	91.92'	176.17'
102	3000.00'	3°11'32"	83.59'	167.15'

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12

Oran

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

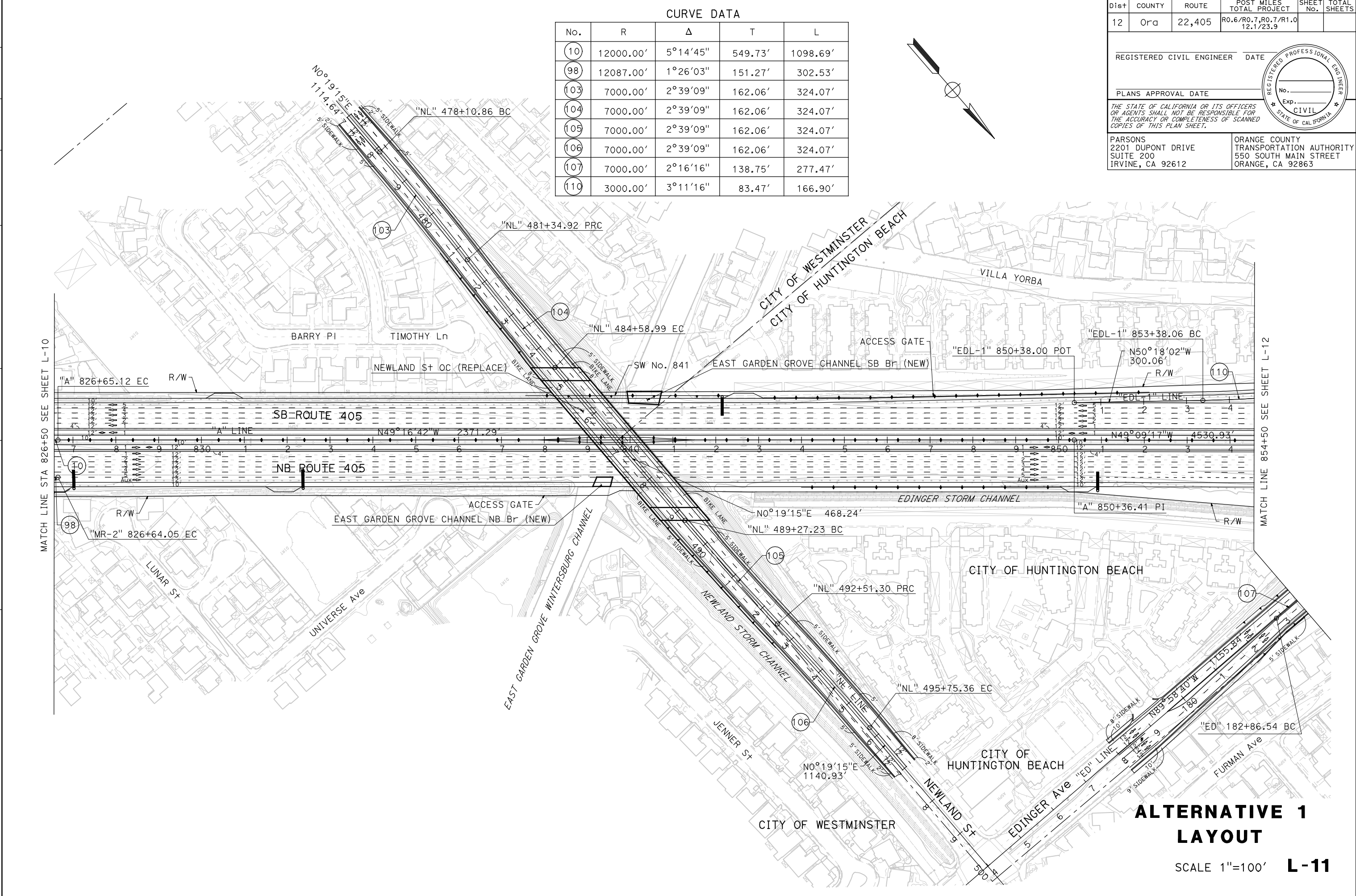
REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA



CURVE DATA				
No.	R	Δ	T	L
10	12000.00'	5°14'45"	549.73'	1098.69'
98	12087.00'	1°26'03"	151.27'	302.53'
103	7000.00'	2°39'09"	162.06'	324.07'
104	7000.00'	2°39'09"	162.06'	324.07'
105	7000.00'	2°39'09"	162.06'	324.07'
106	7000.00'	2°39'09"	162.06'	324.07'
107	7000.00'	2°16'16"	138.75'	277.47'
110	3000.00'	3°11'16"	83.47'	166.90'

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12

Oran

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

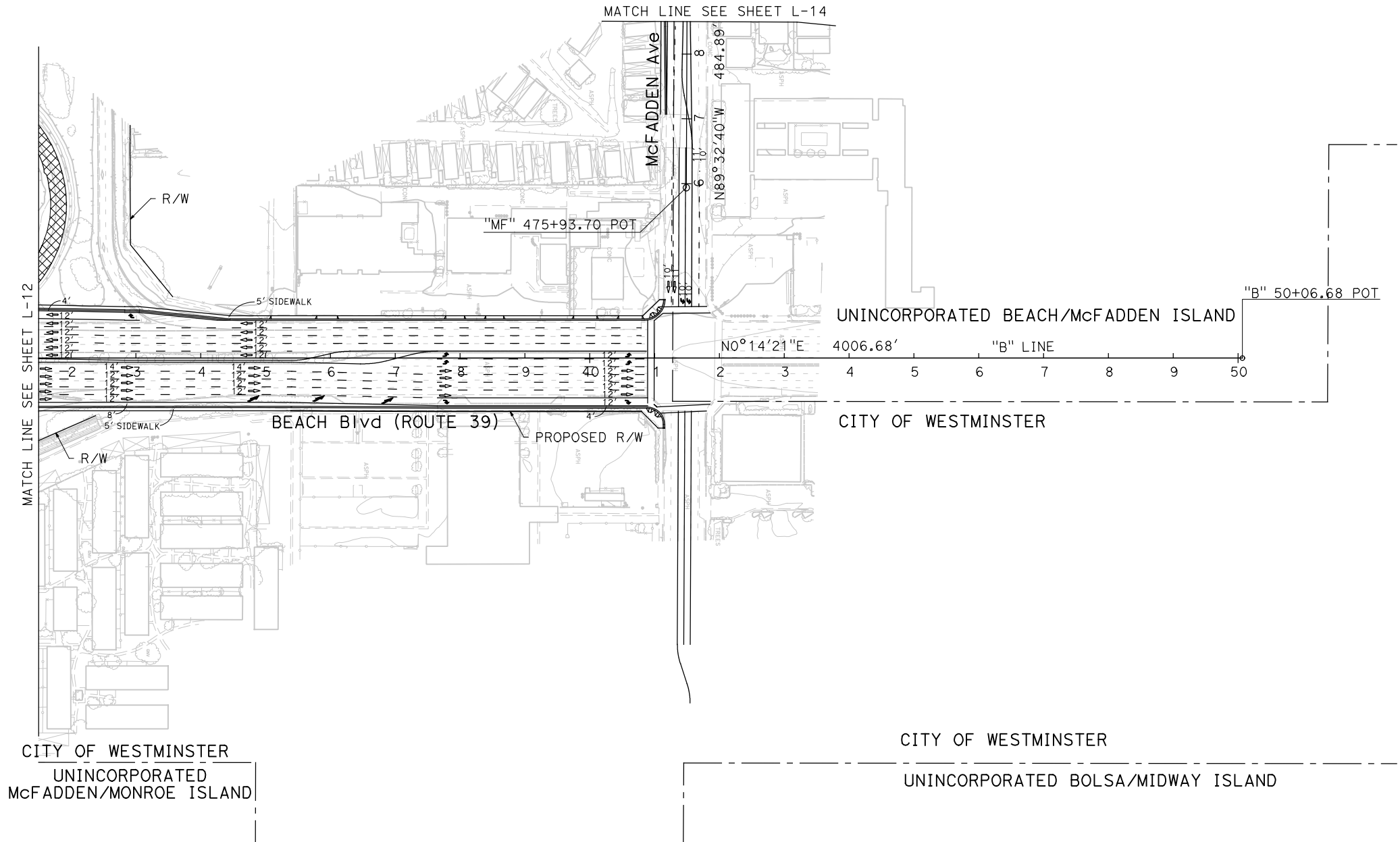
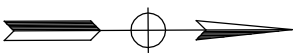
PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

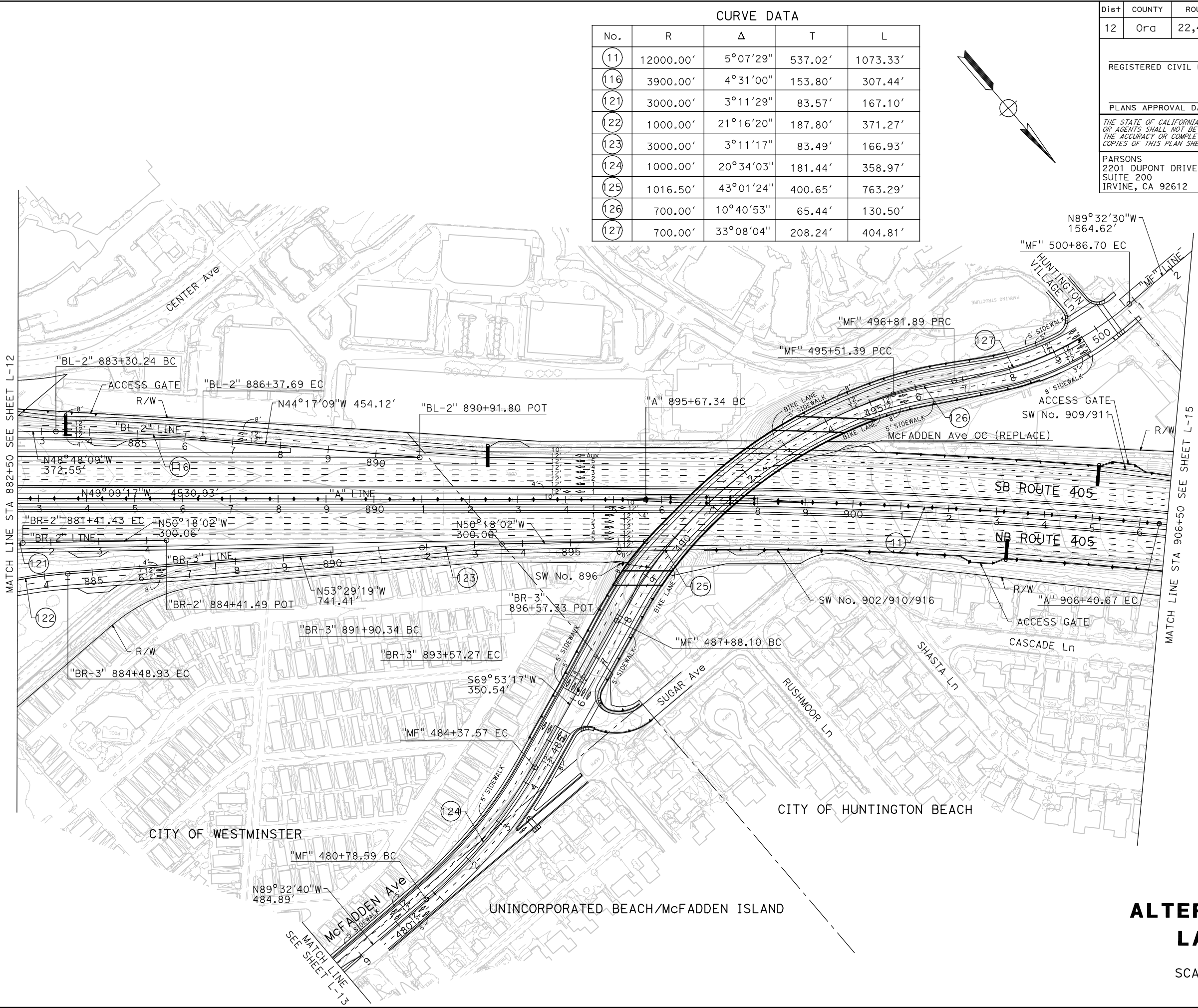
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR		CALCULATED-DESIGNED BY	REVISOR	DATE
Caltrans®			CHECKED BY	DATE	REVISED BY



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE			No. _____ Exp. _____		
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		



ALTERNATIVE 1
LAYOUT
SCALE 1"=100' **L-13**



CURVE DATA				
No.	R	Δ	T	L
(11)	12000.00'	5°07'29"	537.02'	1073.33'
(16)	3900.00'	4°31'00"	153.80'	307.44'
(21)	3000.00'	3°11'29"	83.57'	167.10'
(22)	1000.00'	21°16'20"	187.80'	371.27'
(23)	3000.00'	3°11'17"	83.49'	166.93'
(24)	1000.00'	20°34'03"	181.44'	358.97'
(25)	1016.50'	43°01'24"	400.65'	763.29'
(26)	700.00'	10°40'53"	65.44'	130.50'
(27)	700.00'	33°08'04"	208.24'	404.81'

Dist

COUNTY

ROUTE

POST MILES
TOTAL PROJECT

SHEET
No.

TOTAL
SHEETS

12

Oran

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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COPIES OF THIS PLAN SHEET.

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA

**ALTERNATIVE 1
LAYOUT**
SCALE 1"=100' **L-14**

LAST REVISION DATE PLOTTED => 11/14/2011
00-00-00 TIME PLOTTED => 10:56:53 AM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR

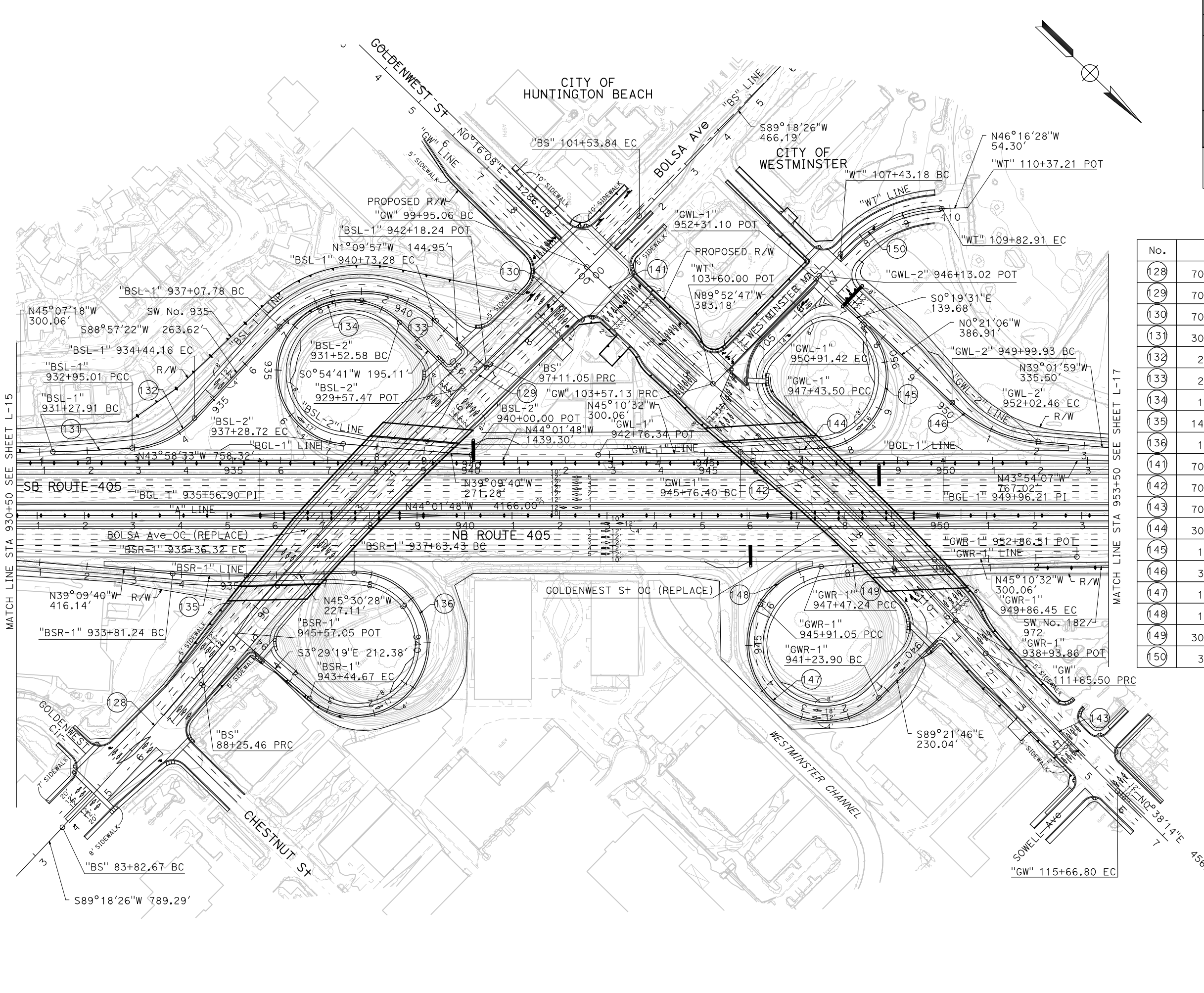
CHECKED BY

DESIGNED BY

REVISOR

DATE

DATE



Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12

Oran

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

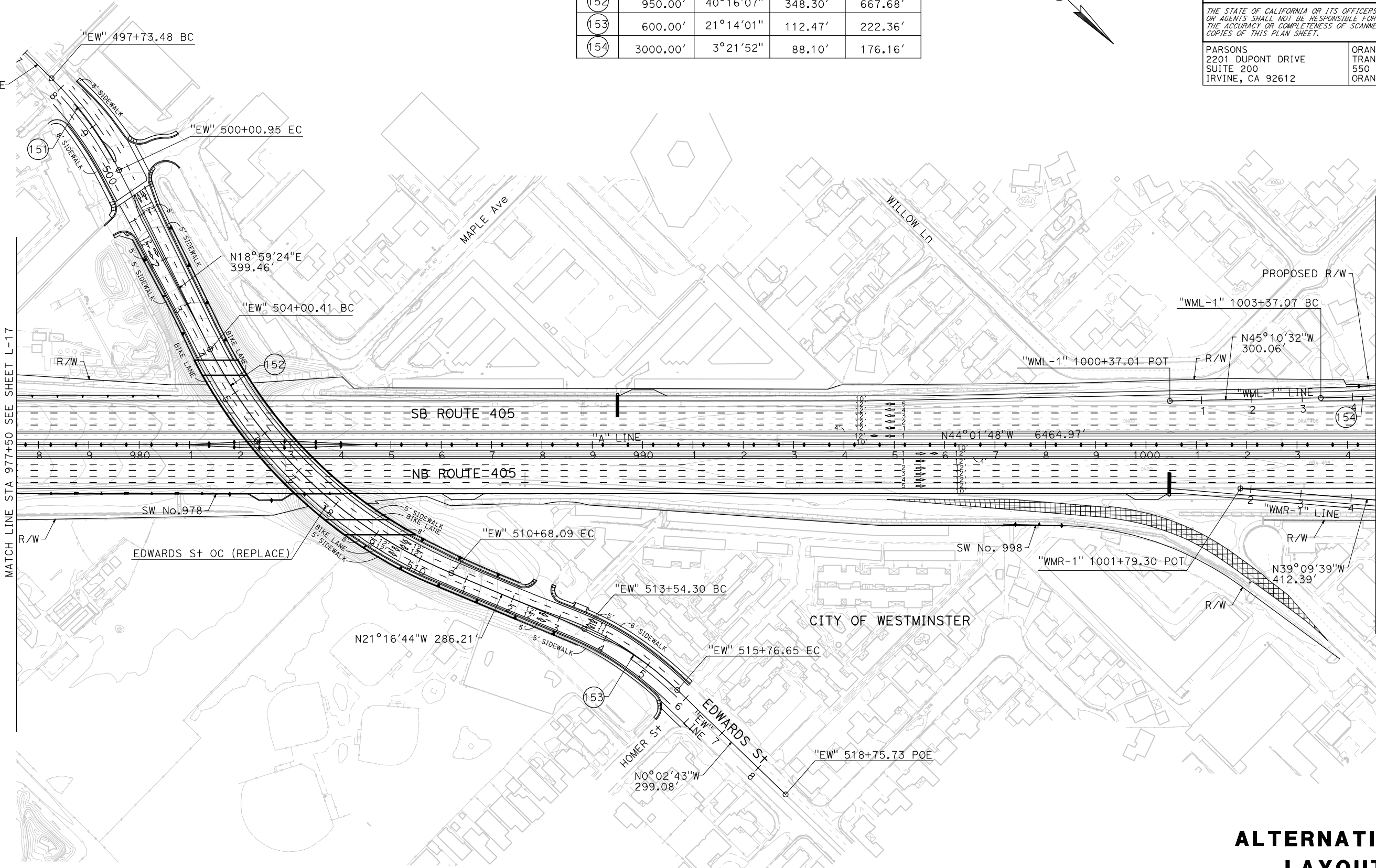
ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

CURVE DATA				
No.	R	Δ	T	L
128	7000.00'	3°37'28"	221.47'	442.79'
129	7000.00'	7°14'55"	443.38'	885.59'
130	7000.00'	3°37'28"	221.47'	442.79'
131	3000.00'	3°11'29"	83.57'	167.10'
132	200.00'	42°43'50"	78.24'	149.16'
133	233.00'	89°52'40"	232.50'	365.50'
134	150.00'	220°04'20"	-	576.15'
135	1400.00'	6°20'48"	77.62'	155.08'
136	150.00'	222°01'09"	-	581.24'
141	7000.00'	2°57'49"	181.07'	362.07'
142	7000.00'	6°37'00"	404.63'	808.37'
143	7000.00'	3°17'05"	200.71'	401.30'
144	3000.00'	3°11'29"	83.57'	167.10'
145	151.07'	131°57'29"	338.97'	347.93'
146	300.00'	38°40'53"	105.30'	202.53'
147	160.00'	167°17'09"	1436.16'	467.15'
148	171.00'	52°19'57"	84.02'	156.19'
149	3000.00'	4°34'07"	119.67'	239.21'
150	315.00'	43°36'18"	126.01'	239.73'

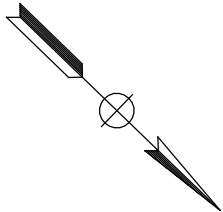
ALTERNATIVE 1

LAYOUT

SCALE 1"=100' L-16



CURVE DATA				
No.	R	Δ	T	L
151	700.00'	18°37'07"	114.75'	227.47'
152	950.00'	40°16'07"	348.30'	667.68'
153	600.00'	21°14'01"	112.47'	222.36'
154	3000.00'	3°21'52"	88.10'	176.16'



Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12

Oran

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA

ALTERNATIVE 1
LAYOUT
SCALE 1"=100' L-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONSULTANT FUNCTIONAL SUPERVISOR

CHECKED BY

DESIGNED BY

REVISOR

DATE

DATE

Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12

Oran

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

CURVE DATA				
No.	R	Δ	T	L
154	3000.00'	3°21'52"	88.10'	176.16'
155	500.00'	37°03'04"	167.55'	323.33'
156	317.00'	86°50'14"	299.97'	480.44'
157	160.00'	177°10'04"	6472.14'	494.75'
158	240.00'	48°45'20"	108.76'	204.23'
159	3000.00'	6°04'43"	159.29'	318.28'
160	2000.00'	6°07'57"	107.13'	214.06'
161	160.00'	167°16'48"	1435.47'	467.13'
162	240.00'	58°41'50"	134.95'	245.87'

CURVE DATA				
No.	R	Δ	T	L
163	260.00'	81°11'25"	222.81'	368.43'
164	500.00'	32°04'23"	143.72'	279.89'
165	3000.00'	3°15'27"	85.31'	170.57'
166	8000.00'	7°40'35"	536.72'	1071.83'
167	1500.00'	14°38'27"	192.70'	383.30'
168	600.00'	23°42'12"	125.91'	248.22'
169	62.50'	80°22'18"	52.79'	87.67'
170	300.00'	38°00'34"	103.33'	199.02'

ALTERNATIVE 1

LAYOUT

SCALE 1"=100' L-19

BORDER LAST REVISED 7/2/2010

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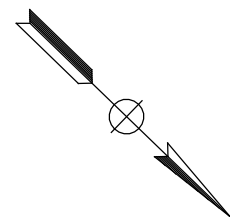
RELATIVE BORDER SCALE IS IN INCHES

UNIT 2994

PROJECT NUMBER & PHASE

12000001800

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR				
Caltrans		CALCULATED-DESIGNED BY	REVISED BY		
		CHECKED BY	DATE REVISED		



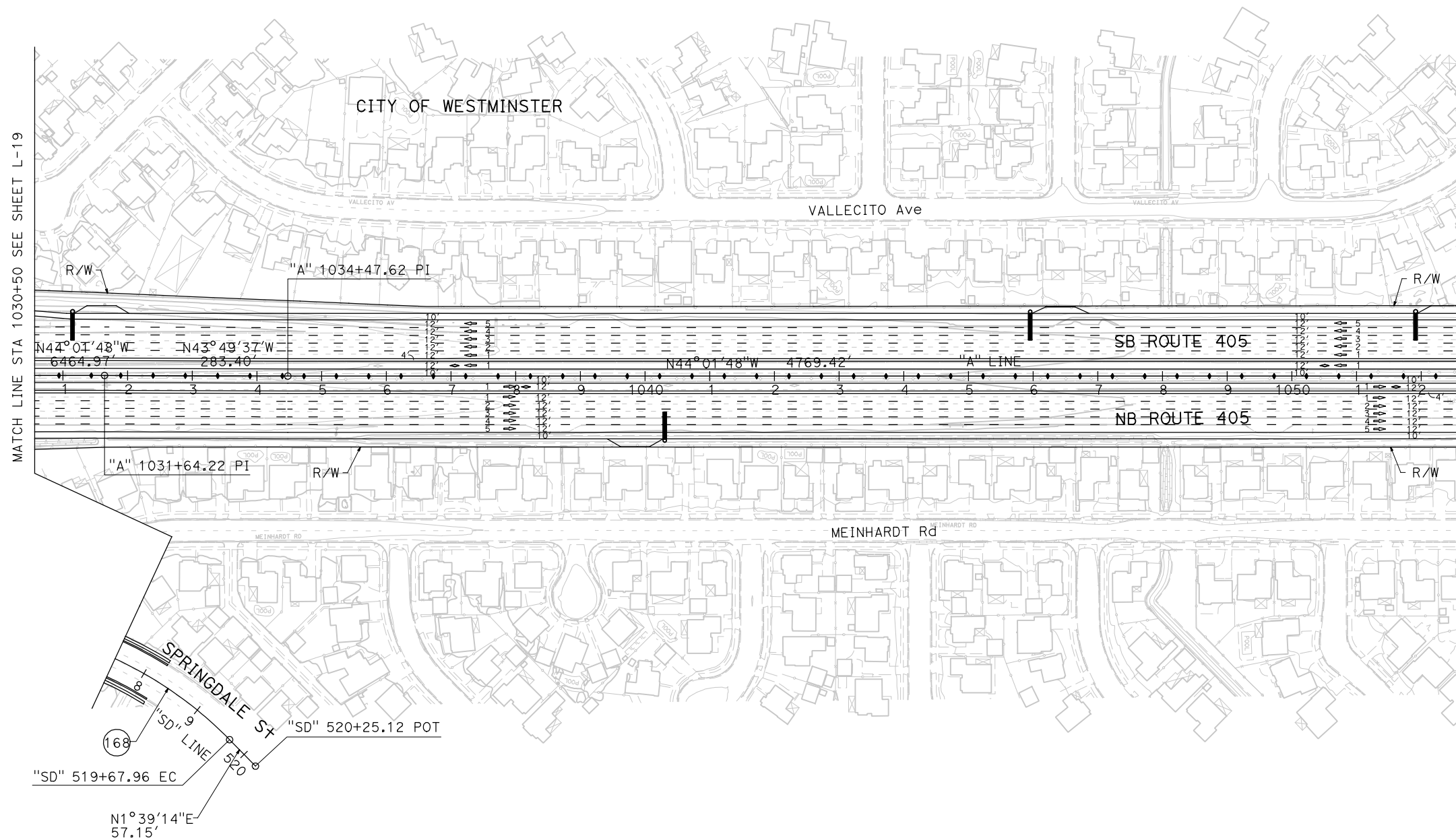
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	22,405	R0.6/R0.7/R0.7/R1.0 12.1/23.9		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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COPIES OF THIS PLAN SHEET.

PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
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CURVE DATA				
No.	R	Δ	T	L
168	600.00'	23°42'12"	125.91'	248.22'



MATCH LINE STA 1052+50 SEE SHEET L-21

ALTERNATIVE 1 LAYOUT

SCALE 1"=100' **L-20**

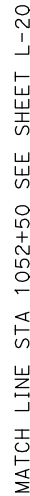
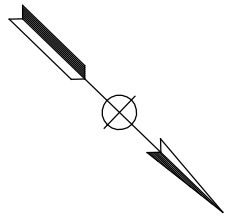


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Et. Caltrans®

CHECKED BYDATE REVISED

CURVE DATA



MATCH LINE STA 1078+50 SEE SHEET L-22

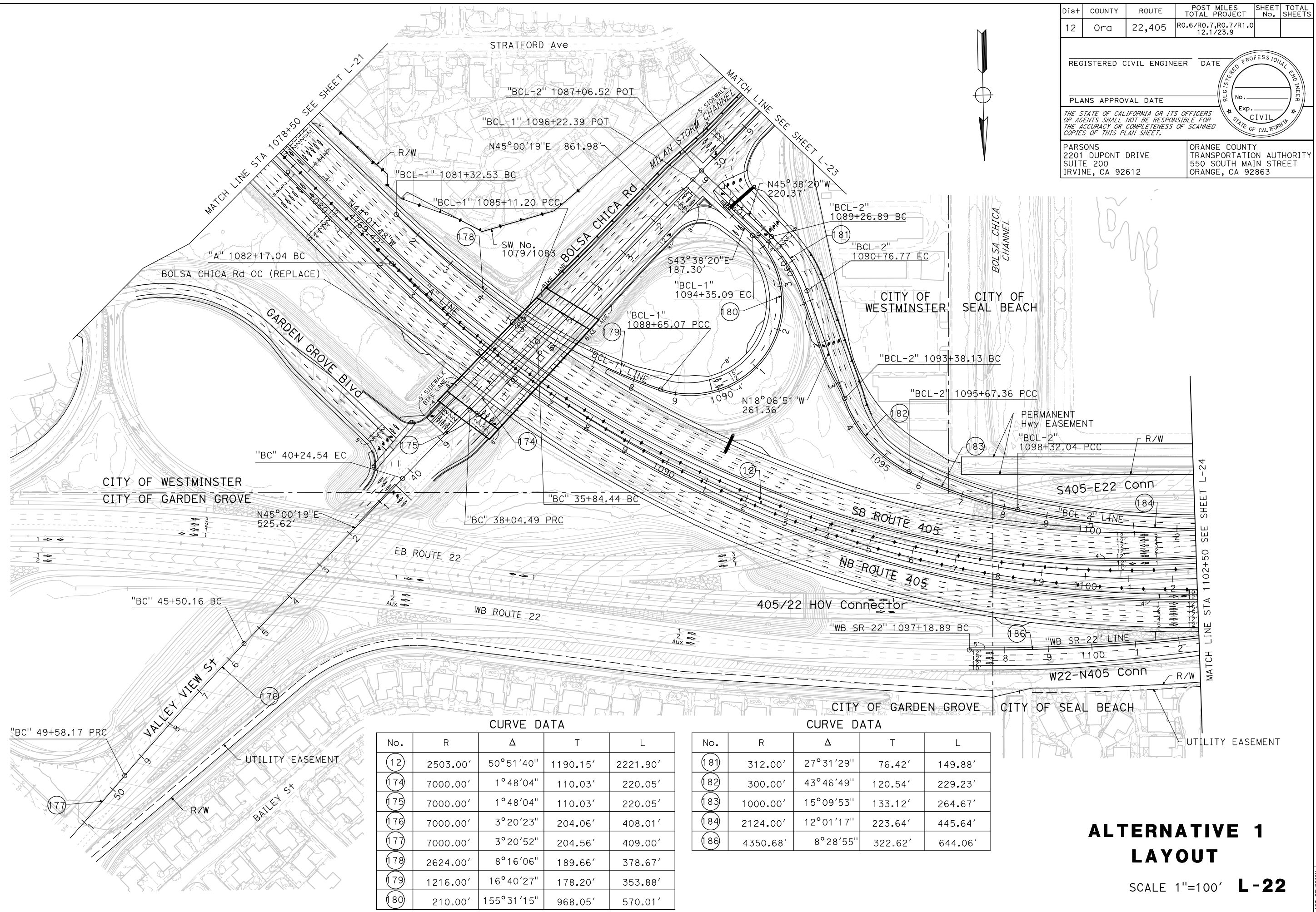
SCALE 1"=100'

L - 21

12000001800

DATE PLOTTED => 11/14/2011	LAST REVISION
TIME PLOTTED => 10:57:30 AM	00-00-00

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Ora	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		
<div style="display: flex; justify-content: space-between;"> <div> REGISTERED CIVIL ENGINEER DATE </div> <div> </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> PLANS APPROVAL DATE </div> <div> </div> </div>					
<p><i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</i></p>					
PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612			ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863		



**ALTERNATIVE 1
LAYOUT**

SCALE 1"=100' **L-22**

x

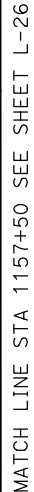
LAST REVISION	DATE PLOTTED => 11/14/2011
00-00-00	TIME PLOTTED => 10:57:43 AM

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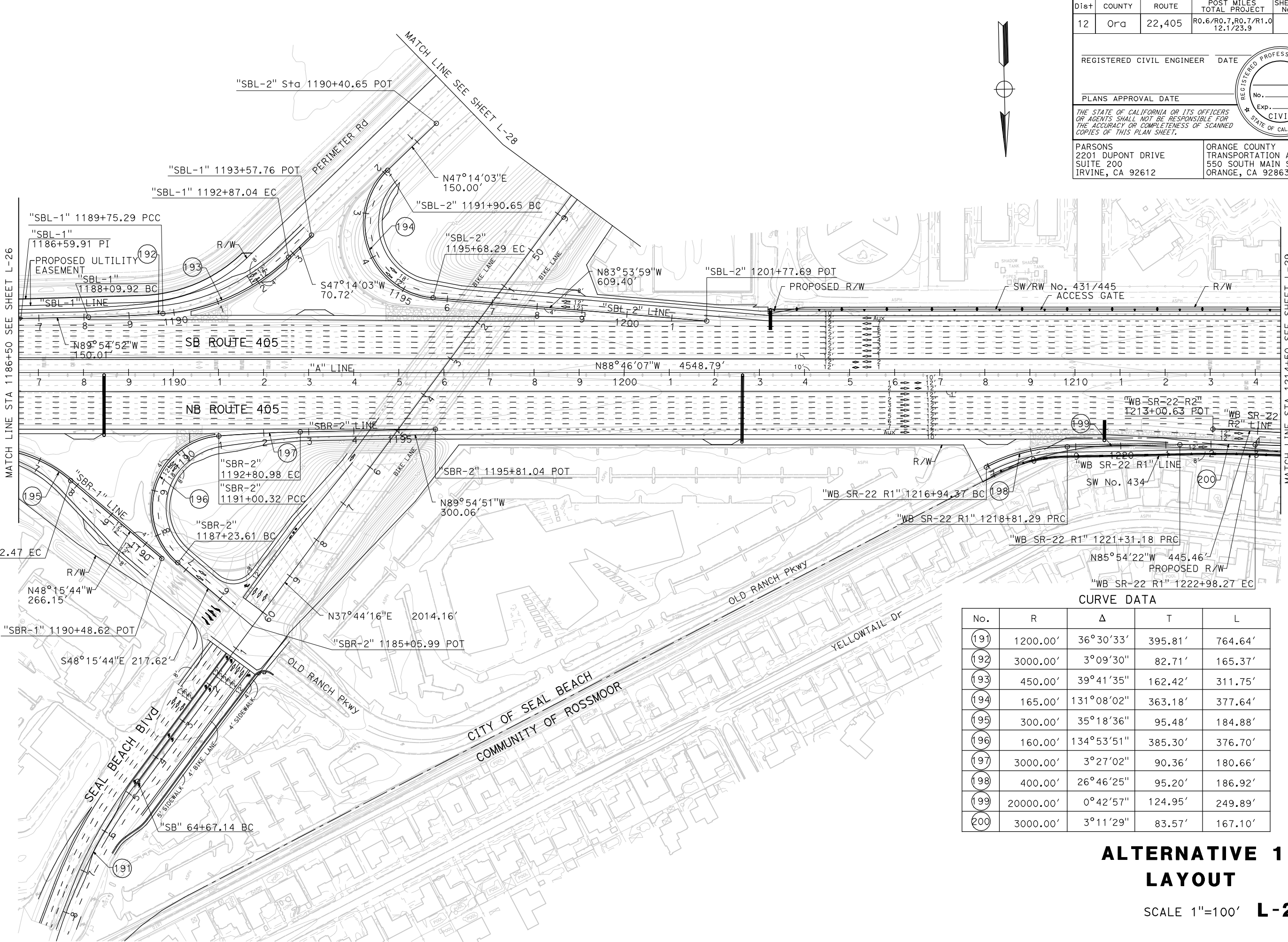
Subway®

CONSULTANT FUNCTIONAL SUPERVISOR

REVISED BY
DATE REVISED



SCALE 1"=100' **L-25**



Dist

COUNTY

ROUTE

POST MILES TOTAL PROJECT

SHEET No.

TOTAL SHEETS

12

Ora

22,405

R0.6/R0.7,R0.7/R1.0
12.1/23.9

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

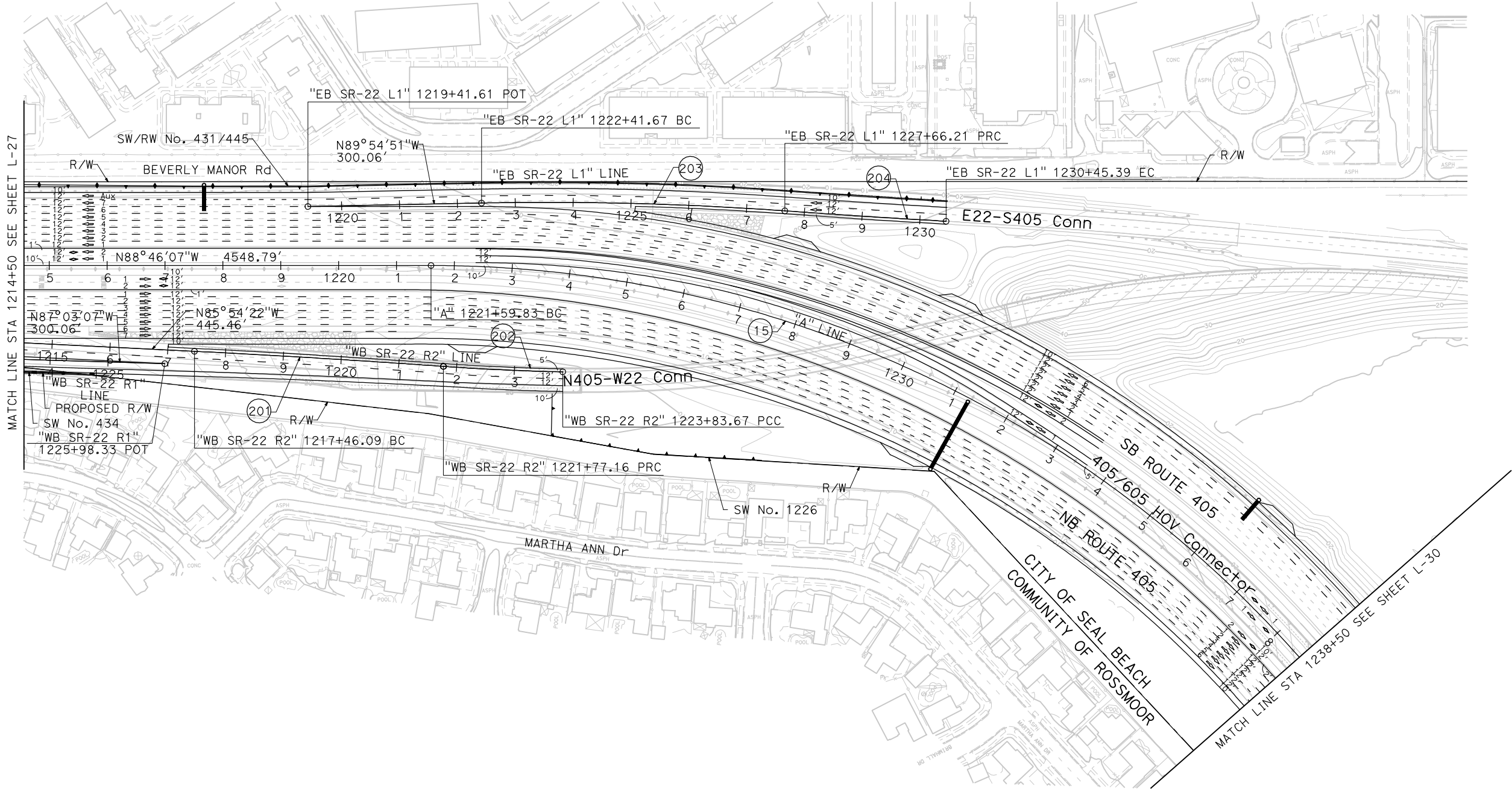
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PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

No.	R	Δ	T	L
191	1200.00'	36°30'33'	395.81'	764.64'
192	3000.00'	3°09'30"	82.71'	165.37'
193	450.00'	39°41'35"	162.42'	311.75'
194	165.00'	131°08'02"	363.18'	377.64'
195	300.00'	35°18'36"	95.48'	184.88'
196	160.00'	134°53'51"	385.30'	376.70'
197	3000.00'	3°27'02"	90.36'	180.66'
198	400.00'	26°46'25"	95.20'	186.92'
199	20000.00'	0°42'57"	124.95'	249.89'
200	3000.00'	3°11'29"	83.57'	167.10'

ALTERNATIVE 1
LAYOUT
SCALE 1"=100' L-27



CURVE DATA

No.	R	Δ	T	L
15	2000.00'	58°25'06"	1118.18'	2039.19'
201	20000.00'	1°14'06"	215.54'	431.07'
202	3967.24'	2°58'57"	103.28'	206.51'
203	5720.87'	5°15'12"	262.45'	524.54'
204	20000.00'	0°47'59"	139.60'	279.19'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

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COPIES OF THIS PLAN SHEET.

PARSONS
2201 DUPONT DRIVE
SUITE 200
IRVINE, CA 92612

ORANGE COUNTY
TRANSPORTATION AUTHORITY
550 SOUTH MAIN STREET
ORANGE, CA 92863

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

CIVIL

STATE OF CALIFORNIA

ALTERNATIVE 1
LAYOUT

SCALE 1"=100' L-29

BORDER LAST REVISED 7/2/2010

USERNAME => p0027660
DGN FILE => ALT 1 Layout Sheets.dgn

RELATIVE BORDER SCALE
IS IN INCHES

0 1 2 3

UNIT 2994

PROJECT NUMBER & PHASE

12000001800

LAST REVISION DATE PLOTTED => 11/14/2011
00-00-00 TIME PLOTTED => 10:58:14 AM

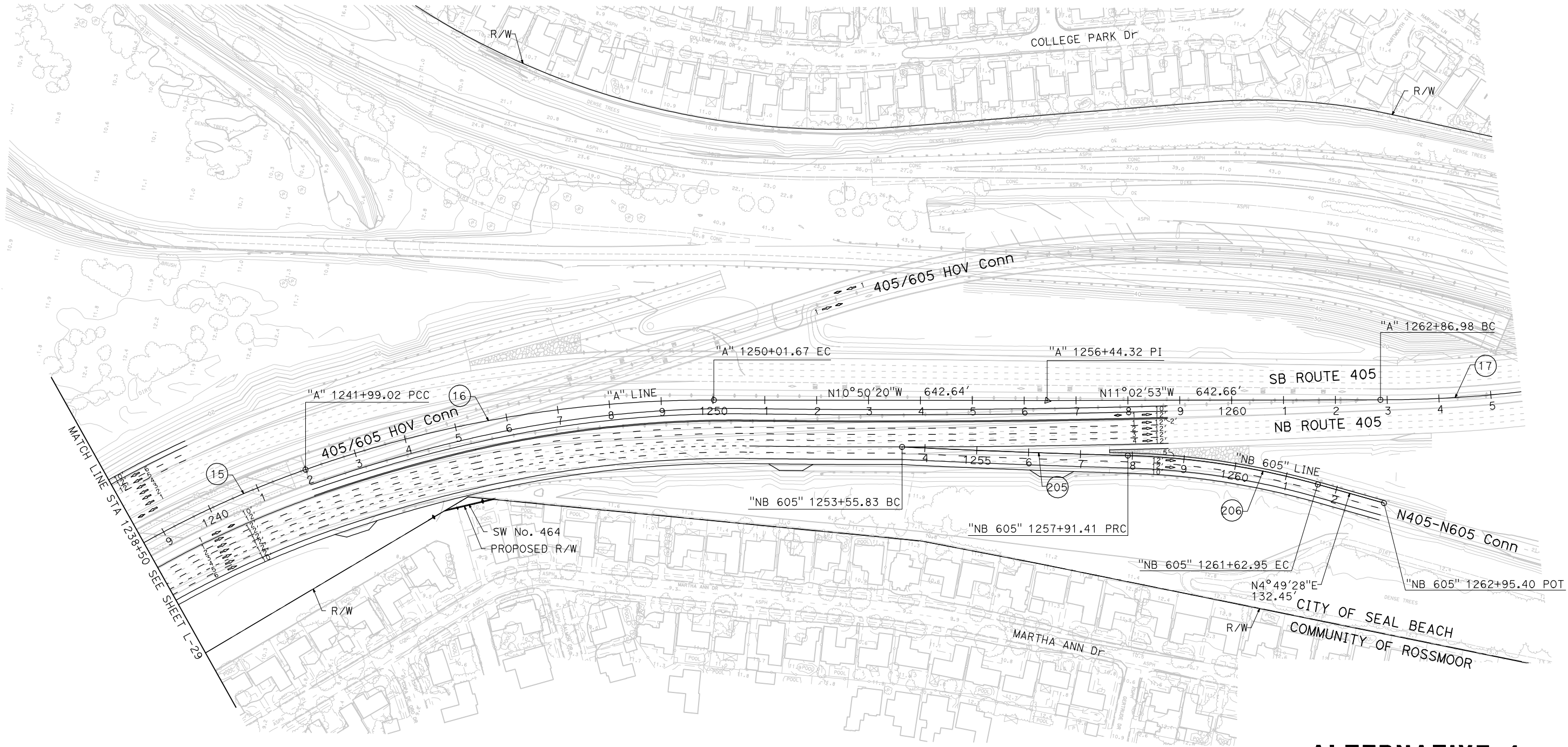
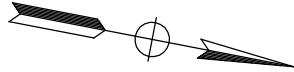
X

Et. Trans.

DATE REVISED

CHECKED BY

No.	R	Δ	T	L
15	2000.00'	58°25'06"	1118.18'	2039.19'
16	2357.00'	19°30'42"	405.25'	802.65'
17	2400.00'	36°15'41"	785.86'	1518.91'
205	20062.00'	1°14'38"	217.80'	435.58'
206	1500.00'	14°11'30"	186.72'	371.54'



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
12	Oran	22,405	R0.6/R0.7,R0.7/R1.0 12.1/23.9		

REGISTERED CIVIL ENGINEER _____ DATE _____

PLANS APPROVAL DATE _____

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PARSONS 2201 DUPONT DRIVE SUITE 200 IRVINE, CA 92612	ORANGE COUNTY TRANSPORTATION AUTHORITY 550 SOUTH MAIN STREET ORANGE, CA 92863
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ALTERNATIVE 1 LAYOUT

SCALE 1"=100' **L-30**

**ALTERNATIVE 2
LAYOUT SHEETS**